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2 1. A coded patterned platelet comprising:

3 a platelet having a specified shape, a specified surface area and one or more
4 specified identification markings thereon.

5 2. A coded patterned platelet as in claim 1 wherein:

6 one or more specified identification markings are selected from the group
7 consisting of spatial markings, spectral markings, or polarization markings on the coded
8 patterned platelet.

9 3. A coded patterned platelet as in claim 2 wherein:

10 one or more spatial markings are selected from the group consisting of geometric
11 shapes, numbers, letters, irregular shapes, notches, and apertures.

12 4. A coded patterned platelet as in claim 2 wherein:

13 one or more spectral markings are produced by materials selected from the group
14 consisting of dyes, pigments, Cholesteric Liquid Crystals, doped Cholesteric Liquid
15 Crystals materials, holographic materials, refractive materials, reflective materials, and
16 metallic materials.

17 5. A patterned platelet identity code for use with articles or substances
18 comprising:

19 a plurality of patterned platelets having any combination of n specified shapes
20 with m specified surface areas where n and m are any integers with a value 1 or greater.

21 6. A patterned platelet identity code for use with articles or substances as in
22 claim 5 wherein:

23 the identity code is further defined by one or more markers selected from the
24 group consisting of the percentage distribution of n sizes and m shapes of patterned
25 platelets, spectral codes, polarization codes, spatial codes position on the article codes
26 and angle of observation codes.

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- 1 7. A method of making polymer patterned platelets comprising:
2 preparing a mixture of polymer material to be actinically cured,
3 spreading a layer of the of polymer material to be actinically cured on a sheet of
4 substrate material,
5 applying a mask with apertures of the shapes and sizes of the desired patterned
6 platelets to the ploymer material to be actinically cured,
7 exposing the masked polymer material to be actinically cured to radiation, thus
8 forming patterned platelets of a specified shape and size,
9 removing the patterned platelets from the substrate.
- 10 8. A method of making polymer patterned platelets as in claim 7 wherein,
11 the polymer is a cholesteric liquid crystal.
- 12 9. A method of making cholesteric liquid crystal patterned platelets as in claim 8
13 wherein there is the additional step of:
14 varying the concentration of chiral dopants for controlling the pitch of the
15 cholesteric liquid crystal material such that it reflects a specified portion the spectrum.
- 16 10. A method of making cholesteric liquid crystal patterned platelets as in claim 8
17 wherein there is the additional step of:
18 doping the cholesteric liquid crystal material to absorb a specified portion the
19 spectrum.
- 20 11. A method of making cholesteric liquid crystal patterned platelets as in claim 9
21 wherein there is the additional step of:
22 spatially marking the cholesteric liquid crystal material.
- 23 12. A method of making cholesteric liquid crystal patterned platelets as in claim 8
24 wherein there is the additional step of:
25 repeating the process steps of spreading a layer of the of cholesteric liquid crystal
26 material to be actinically cured on a sheet of substrate material,

1 applying a mask with apertures of the shapes and sizes of the desired patterned
2 platelets to the cholesteric liquid crystal material to be actinically cured,
3 exposing the masked cholesteric liquid crystal material to be actinically cured to
4 radiation, thus forming patterned platelets of a specified shape and size,
5 to obtain successive layers of cholesteric liquid crystal material.

6 13. A method of making cholesteric liquid crystal patterned platelets as in claim
7 12 wherein the masks are changed to add spatial markings.

8 14. A method of making cholesteric liquid crystal patterned platelets as in claim
9 12 wherein the masks are changed to create three-dimensional shapes.

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11 15. A method of making patterned platelets comprising:
12 masking an area of a substrate to obtain a shape and size for the patterned platelet,
13 depositing a layer of material through the mask,
14 removing the patterned platelets from the substrate.

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16 16. A method of making patterned platelets as in claim 15 wherein:
17 the additional steps of masking an area of the material previously deposited, and
18 depositing a layer of material through the mask to add to the previously deposited
19 material.

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21 17. A method of making patterned platelets as in claim 15 wherein:
22 the additional steps of masking an area of the material previously deposited, and
23 depositing a layer of a different material through the mask to add to the previously
24 deposited material.

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2 18. A method of making patterned platelets as in claim 15 wherein:

3 the additional steps of masking a portion of the area of the material previously
4 deposited, and depositing a layer of material through the mask to add to the previously
5 deposited material and define a spatial marking thereon.

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7 19. A method of making patterned platelets as in claim 15 wherein:

8 the additional steps of masking a portion of the area of the material previously
9 deposited, and depositing a layer of material through the mask to add to the previously
10 deposited material and add material to make a three-dimensional shaped patterned
11 platelet.

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13 20. A method of making patterned platelets as in claim 15 wherein:

14 the additional steps of masking a portion of the area of the material previously
15 deposited, and subtracting a layer of material from the unmasked portion of the
16 previously deposited material to define a spatial marking thereon.

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18 21 A method of making patterned platelets comprising:

19 forming a film of material on a substrate,
20 masking a portion of the film,
21 removing material from the unmasked portion of the material, to form patterned
22 platelets,
23 removing the patterned platelets from the substrate.

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2 22 A method of making patterned platelets as in claim 21 wherein:

3 the additional steps of masking a portion of the area of the material, and

4 subtracting a layer of material from the unmasked portion of the patterned platelet

5 material to define a spatial marking thereon.

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7 23. A method of detecting patterned platelet codes comprising the steps of:

8 observing a sample of the coded patterned platelets,

9 counting the patterned platelets by type used to determine if it fits the code

10 pattern.

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12 24. A method of detecting patterned platelet codes as in claim 23 wherein,

13 a charge coupled device pixelizes the image of the patterned platelets observed,

14 the charge coupled device sends the image of the platelets to a computer

15 programmed with pattern recognition software to recognize and count the shapes and

16 sizes and spatial markings of the patterned platelets used and compare it to the code used.

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18 25. A method of detecting patterned platelet codes as in claim 23 wherein a

19 spectrum analyzer determines the spectral codes used.

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21 26. A method of detecting patterned platelet codes as in claim 23 wherein a

22 polarization detector detects the polarization codes used.

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24 27. A code comprising patterned platelets.

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2 28. A code as in claim 27 wherein,

3 the code comprises one or more features of the patterned platelets chosen from the
4 group consisting of specified shapes, specified sizes, spatial markings, percentage
5 distributions of coded patterned platelets, spectral markings, polarization markings and
6 angle of viewing codes.

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8 29. A code as in claim 27 wherein,

9 the positions of the patterned platelets relative to each other on an article are part
10 of the code.

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12 30. A code as in claim 29 wherein,

13 the code comprises one or more features of the patterned platelets chosen from the
14 group consisting of blank spaces, specified shapes, specified sizes, spatial markings,
15 percentage distributions of coded patterned platelets, spectral markings, polarization
16 markings and angle of viewing codes.

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18 31. An coded ink comprising:

19 an ink carrier,

20 a code of a plurality of coded patterned pigments in the ink carrier.

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1 32. A coded paint comprising:

2 a paint carrier,

3 a code of a plurality of patterned pigments in the paint carrier.

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5 33. A coded paint as in claim 32 wherein the paint is applied to an article to code

6 the article.

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8 34. A coded ink as in claim 31 wherein the ink is applied to an article to code the

9 article.

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11 35. A code as in claim 27 wherein:

12 the patterned platelets are applied to the surface of an article to identify it.

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14 36. A code as in claim 27 wherein:

15 the patterned platelets are mixed in with the material comprising an article to

16 identify it.

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18 37. A code as in claim 27 wherein:

19 the patterned platelets are mixed in with a liquid to identify it.

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